

# PRODUCT CATALOGUE

## Conventional Light Fittings



Explosion-Proof Light Fittings



Dust- and Waterproof Light Fittings

# 2023/24



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# SCHUCH — A COMPANY WITH TRADITIONS

## CHRONICLE

### 2. March 1895

A few years after the invention of the incandescent lamp, Adolf Schuch founded the company Adolf Schuch Elektrotechnische Fabrik in Worms at the river Rhein.

He started the production of waterproof porcelain lamp holders for incandescent lamps, as well as waterproof porcelain hand lamps with protective glass for local breweries, tanneries and chemical plants.

### 1906

Production of first street light fittings.

### 1910

The first explosion-protected mining light fittings were delivered to coal mines in the Ruhr region, the Saarland and South Africa.

### 1929

Explosion-protected light fittings were the basis of the whole manufacturing program. SCHUCH became a pioneer for explosion-protected light fittings.

### 1940

Large parts of the factory buildings are destroyed by the war. Continuation of production in alternative building.

### 21. February 1945

Destruction of all company premises and alternative buildings as a result of intense bombing of Worms.

### 1945 -1948

Recovery of production.

Launch of an improvised manufacturing program for night lamps, desk lamps, workplace and shop lamps, due to deficiency in raw materials.

### 1948

The production of explosion-protected light fittings, street light fittings and industrial and special-purpose light fittings of all types was restarted.

### 1949

Production of first light fittings for fluorescent tubes, as well as street light fittings for high pressure mercury lamps.

### 1952/1953

Fiberglass-reinforced polyester was used for the first time to produce housings for moisture-proof, explosion-protected and street light fittings.

Introduction of own production of so-called

“PREPREG” (preimpregnated fibres), as well as construction of an in-house moulding pressroom to produce fiberglass-reinforced polyester housings.

### 1953

First approval to use explosion-protected linear light fittings for single-pin fluorescent tubes

### 1957

As a result of the expansion of production demand, the company enlarged its working and storage areas by more than 14,000 m<sup>2</sup>.

### 1962

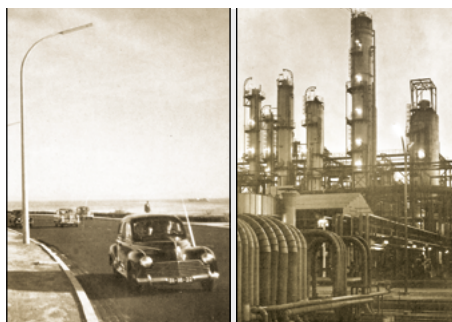
The new plant II on the outskirts of worms got erected.

### 1964

The production was mostly moved into a new modern plant in the Mainzer Strasse in Worms, which included GRP pressing, mechanical workshops and a fully automatic powder-coating line.

### 1969

New plant expansion to the total of 40,000 m<sup>2</sup>. SCHUCH achieved a deep vertical integra-







tion and extensive technologies for design and production of highly-protected technical light fittings.

**1972**

Start of production of the legendary 161/162 series waterproof light fittings. A major milestone in the company's history.

**1975**

A foamed polyurethane gasket was used in waterproof light fittings for the first time. The semi-automatic foaming systems required for this are manufactured in our own toolmaking shop.

**1988/ 1989**

World's first approval to use an explosion-protected linear light fitting for a 2-pin fluorescent tube. SCHUCH became a pioneer for modern explosion-protected linear light fittings.

**1995**

Company's 100th Anniversary  
First time certification of quality management system according to the new standard DIN ISO 9001.

**1998**

First approval worldwide of an ex-ECG with „end-of-life“ shutdown. Immediately afterwards, this will be included in the standard.



**After 2000**

The start of extending the standard manufacturing program, as well as special industry solutions for various application conditions in the industry.

**2002**

LED technology is revolutionizing lighting. From 2002, SCHUCH concentrated its development activities in all product areas on energy-efficient LED solutions.

**2005 - 2009**

An almost complete range of LED lights is created within a few years and successfully launched to the market.

**2011**

The LED range is complete with the introduction of the first ex-protected LED lights.

**2014 - 2019**

A phase of extensive investments begins, in which production capacities will be expanded in many areas by 2019, new production technologies will be introduced and energy-efficient renovations will be carried out according to the most modern, environmentally friendly aspects.

**2016/2019**

Lighting becomes smart: introduction of the LIMAS light management



system and so-called RFL lights, which are suitable for easy retrofitting of a light management system.

**2019**

SCHUCH deals intensively with the influence of so-called harmful gases on LED lights. The RESISTANT luminaire range develops from this.

**2020**

125 years of SCHUCH  
Competent, innovative and with passion for excellent lighting!

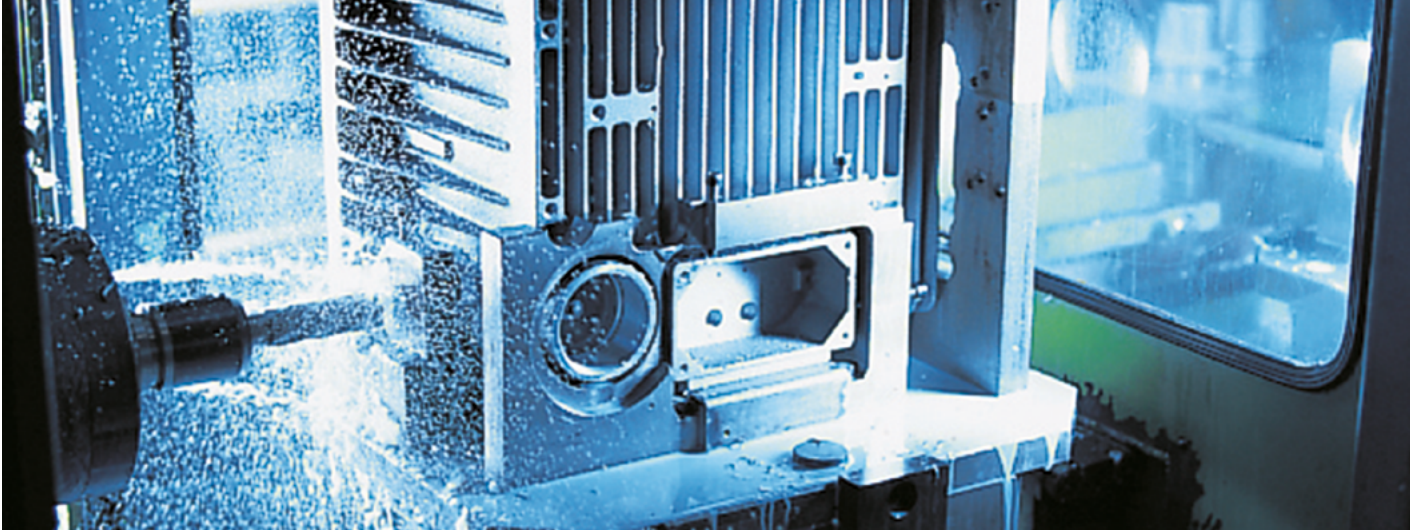
**2021/22**

On our way to becoming a climate-neutral company, we are reaching the next milestone with the installation of our new photovoltaic system with an electricity production of 350,000 kWh p. a. and the planned expansion up to top approx. 900,000 kWh p. a..

**2023**

With the cross-series GreenLine product line, we place the sustainable design of our products at the centre of our activities. The GreenLine label identifies outstandingly sustainable luminaires in our product range that meet all the criteria of a sustainability catalogue.





# *SCHUCH: Quality, Consistency, Future-oriented*

## EVERYTHING FROM A SINGLE SOURCE

From design to final assembly: the company located in Worms performs all the light fitting design, testing and production stages.

SCHUCH engineers use advanced CAD systems to design new light fittings as well as special thermal simulation programs in order to reach optimal temperature control for each LED light fitting. This is a decisive factor for LED service life and, therefore, it is one of the most important quality parameters of a good LED light fitting.

Deep vertical integration in the light fitting production is typical for SCHUCH.

Die forming and cutting, bending and welding of metal parts and housings are performed using modern machining centers and welding robots in mechanical manufacturing.

A modern environment-friendly powder coating unit is used to paint metal light fittings with varnish of a standard or customized color.

Since 1955, all light fittings made of fiberglass-reinforced polyester are produced in a separate pressroom and then provided with polyurethane/silicone gaskets in a fully automated dispensing system.

The tools required for forming, bending and pressing are produced in the in-house tooling workshop.

Careful manual assembly of light fittings is performed in several assembly departments. Finally, each light fitting undergoes specific functional test.

The moulding of explosion-proof LED boards and the ultra sonic welding of gas-tight LED lights are the latest manufacturing processes used in the Worms plant, which further extends SCHUCH's know-how. Constant quality controls and internal audits at all production levels ensure the high quality standard of all SCHUCH lights.

Continuous quality control and internal audits at all production stages ensure a high quality standard for all SCHUCH light fittings.

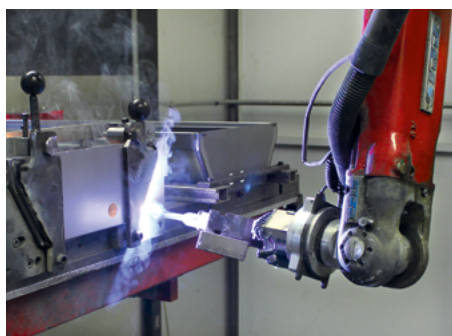
Light fittings, their components and materials are thoroughly tested in our own measuring laboratories, accredited by testing bodies.

Along with the lighting measurements, determination of luminous flux and representation in light distribution curves, light fittings are checked for emitted interferences and noise immunity in accordance with EMC Directive 2004/108 EC and the Electromagnetic Compatibility Act.

Dust- and water chambers are used to check IP rating of the light fittings, including sealing tests underwater.

Heat measurements to check the maximum admissible ambient temperature, low temperature tests and material ageing tests performed in climatic chambers, especially for explosion-protected light fittings, finish the Test Program for SCHUCH light fittings.

This comprehensive philosophy allows SCHUCH to control all processes and to react promptly and flexibly to changing requirements.





## EXCELLENT QUALITY

SCHUCH light fittings are unique branded products "Made in Germany". The proverbial high quality standard which you can rely on.

This is proven by **Quality Certificate as per DIN EN ISO 9001**, which is continuously reconfirmed by VDE, reflects it.

Quality management covers all company activities, starting from design, engineering, production and final assembly to sale, and is valid for all product and manufacturing fields.

Being a manufacturer of explosion-protected light fittings and components, SCHUCH, moreover, is subject to an even stronger supervision by PTB with regard to **quality control as per DIN EN/IEC 80079-34**. The routine surveillance audit has been successfully carried out and reconfirmed by a corresponding certificate since 1999.

The highest quality standards from SCHUCH are also confirmed by the railway. Since November 7th, 2019, SCHUCH has been a certified **Q1 quality supplier to the railway company Deutsche Bahn AG**.

## 100% ORIGINAL SCHUCH

Every single light fitting of our product range is an original SCHUCH product. Designed and engineered by our own engineers, produced using own tools and 100% quality approved in our own work shop. Unique and with it distinctive.



 **MADE IN GERMANY**

## ON THE WAY TO A CLIMATE-NEUTRAL COMPANY



As a manufacturing company, SCHUCH takes its environmental responsibility very seriously. Oriented towards long-term goals, our actions are consistently aligned with the **principle of sustainability**. Through responsible use of limited natural resources and the development of sustainable products, we make an active contribution to environmental protection for a future worth living for present and future generations.

Our luminaires are **not disposable products**. They are designed for high energy efficiency and long service life. The resulting energy savings and very long service lives help to conserve resources and reduce waste. All built-in components can be replaced by skilled personnel if necessary. The only exception is the PRIMO XR series, which must be hermetically sealed due to the application.

All SCHUCH products comply with the requirements of the **REACH** and **ROHS directives**. SCHUCH is a member of the recycling systems **Interseroh+** and **Grüner Punkt** - Duales System Deutschland (DSD) for the proper disposal of packaging and the return and recycling of old equipment.

With permanent measures to reduce our CO<sub>2</sub> emissions, we have been on the way to becoming a climate-neutral company for years.

The most important **milestones** in recent years were:

- The energetic renovation of our main building
- The conversion of our entire factory lighting to LED with corresponding lighting control concepts
- The investment in a new powder coating plant designed according to the most modern environmentally friendly aspects.
- The installation of a photovoltaic system for our own power supply on the shed roofs of our production hall.
- The start of the conversion of our company vehicles to electric cars
- The establishment of a charging infrastructure at the Worms site

The consistent **focus on the development and production site in Worms** also minimises transport distances. In addition, the high degree of vertical integration ensures that preliminary products are often manufactured directly on site and do not have to be delivered over long distances. In addition, our facilities and production processes are intensively examined in **regular energy audits** for further energy-saving potential. Continuous internal process optimisations contribute to the optimal use of resources and the reduction of resource consumption.

As a responsible family business with a history of over 125 years, we are making our contribution to climate protection, reducing environmental pollution, lowering CO<sub>2</sub> emissions and conserving valuable resources.

**Print products** are produced in a **climate neutral** way. The respective CO<sub>2</sub> content of the print job is determined and saved elsewhere through the financial support of aid projects all over the world. To this end, SCHUCH works together with various printing companies and renowned climatepartners.

With this catalog, SCHUCH specifically supports the Verified Carbon Standard project "Clean power generation through wind turbines" in India (Tuppadahalli).

 **Carbon neutral**  
Print product  
ClimatePartner.com/11798-2302-1008





# Waterproof Light Fittings

## Quality knows no compromises

Waterproof light fittings have a wide scope of applications. Thus, a lighting system shall meet various requirements, from simple storage rooms to industrial applications with extreme ambient conditions and temperatures, mechanical and chemical impacts.

Requirements are as various as solutions which SCHUCH offers being an experienced specialist in this field. As a result, a very wide range of light fittings has been designed for special applications at workshops and in production areas.

Numerous excellent references in all industry branches witness SCHUCH's innovative strength, competence and reliability. Our customers appreciate the proverbial high quality of SCHUCH products for over 125 years.

Our customers can also rely on it with regard to all light fittings with the new LED technology. Quality knows no compromises.

### FROM WATERPROOF PORCELAIN LIGHT FITTINGS TO WATERPROOF LED LIGHT FITTINGS

#### 1895

Foundation of the company. Production of the first waterproof porcelain lamp holder for incandescent lamps. Production of first porcelain and hand light fittings with protective glass for damp locations, namely for breweries, leather and chemical industries.

#### 1934

SCHUCH launches the first gas-tight pendant lamp ("completely hermetically sealed"). Further "special lights" and "special mountings" such as barrel illuminators, barn and cellar switches follow.

#### 1949

Production of first waterproof light fittings without diffusers for fluorescent tubes.

#### 1952/53

Production of industry's first waterproof light fitting made of fiberglass-reinforced polyester. Launching own production of "PREPREG" and in-house production of fiberglass-reinforced polyester housings.

#### 1972

Start of production of legendary waterproof of light fittings series 161/162, which, in sub-subsequent years, developed to the waterproof light fitting for severe industrial applications.

#### 1975

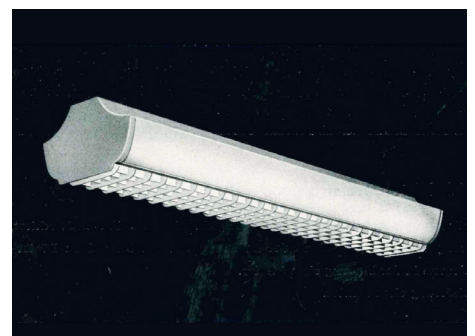
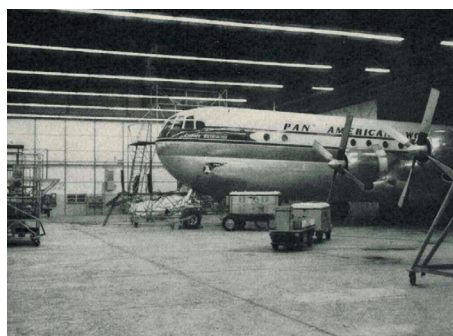
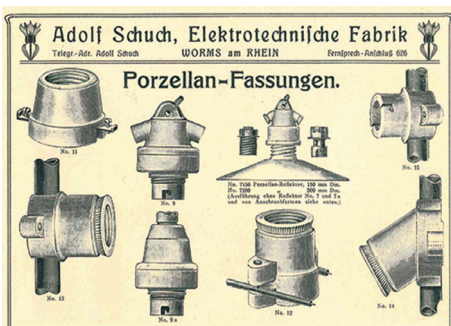
Foamed polyurethane gasket is used for the first time instead of widespread conventional rubber seals.

#### 1995

The range of waterproof light fittings extends by including special industry solutions for severe applications in the industry and at workshops. In the following years, an extensive program developed out of this, which impressively documents the competence and know-how of SCHUCH.

#### 2007

Industry's first waterproof light fitting for unprotected outdoor installation. A unique selling point that shows the high quality of SCHUCH lights.





# Dustproof/Waterproof Light Fittings

## conventional Technology

Product	Series	Page
<b>Light Fittings with diffuser</b>		
<b>Series 161/162...</b>	<b>161/162...</b>	<b>8-10</b>
• for outdoor installation	... AUS	9
• for food industry areas	... LM	9
• for high ambient temperatures	... H	9
<b>Series 163/164...</b>	<b>163/164...</b>	<b>11-12</b>
<b>Series 131...</b>	<b>131...</b>	<b>13</b>
<i>small PC light fitting</i>		
<b>Light Fitting without Diffusers</b>		
<b>Series 175...</b>		
<i>for fluorescent lamps T26</i>	<b>175...</b>	<b>14-16</b>
• <i>with protective tube</i>	<b>S50</b>	15
<b>Carrier Rails</b>	<b>TRS 2000</b>	<b>17</b>
	<b>AL</b>	<b>17</b>
	<b>TRS 1000</b>	<b>18</b>
<b>Through Wirings</b>	<b>DV</b>	<b>18</b>

## LED TECHNOLOGY

### 2007

The first waterproof LED light fittings (low power compact light fittings) are added to in the product range.

### 2014

With light fitting series 161 VARIO SCHUCH introduces industry's first waterproof light fitting with adjustable luminous flux. One light fitting can replace standard versions up to 2 x 58W.

### 2015/16

First LED light fitting series for a wide temperature range of -40°C to +65 °C, designed for applications in climatic zones with extreme temperature conditions and fluctuations.

### 2019/20

SCHUH intensely investigates the influence of harmful gases on LED lights. This has resulted in the RESISTANT range of light fittings with the designations  
ER = increased protection  
HR = high protection  
XR = extremely tight.

### 2020/2021

Introduction of the first `Gas Tight` light fitting PRIMO XR for applications in harmful gas environment.

### 2022

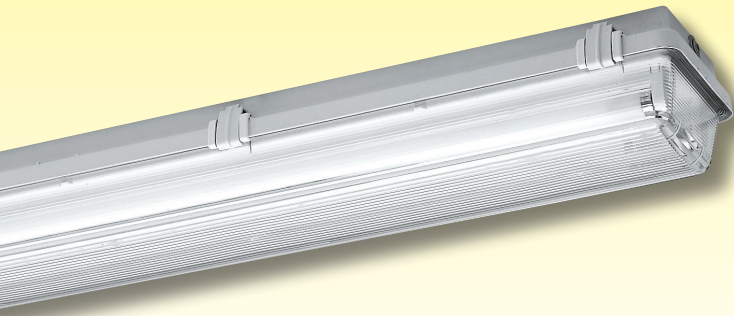
A legend turns 50! With the PROXIMA 161PX... SCHUCH presents the next generation of the legendary 161... moisture-proof luminaire series.

### 2023

The extremely successful LUXANO series is expanded to include the highly efficient version with variably adjustable luminous flux.







## Dustproof/Waterproof Light Fitting with Diffuser Series 161/162...

### Application:

In humid, wet and dusty indoor areas of industrial premises, for workshops and car parks, basements, power stations etc. Aggressive atmospheres: Please consult us.

### Design:

High-grade, robust, extremely stable and chemically resistant dust-/waterproof light fitting.

**Housing:** Glass fibre reinforced polyester resin, foamed polyurethane gasket.

**Diffuser:** Injected, clear acrylic glass with internal prisms or polycarbonate (PC)

### Options:

- stainless steel clips (KE) or one-sided stainless steel hinges (SC)
- plug-in connection (FastConnect)
- 2 entries on one side for mains cable looping instead of the conventional through wiring system
- for vertical wall mounting (with lampholder support)

**Closure:** Three-part captive plastic clips (KK).

**Reflector:** Glass fibre reinforced polyester, can be suspended or removed and carries the electrical components, protected against accidental contact.

**Connection:** 3-pole terminal.

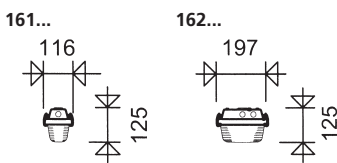
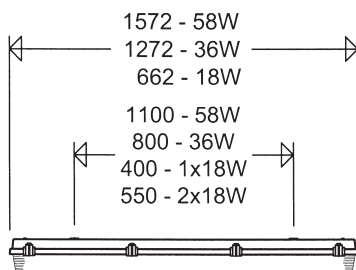
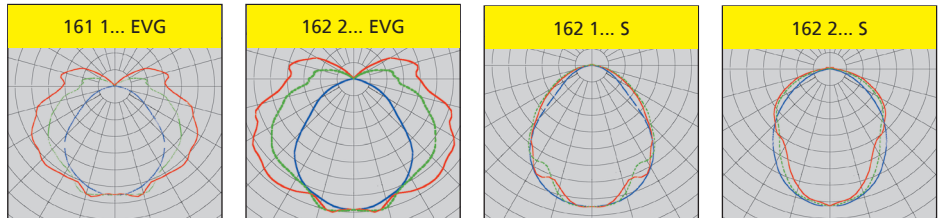
**Cable entries:** 2 plugs M20.

**Mounting:** Closed knock-outs for direct ceiling mounting (to be opened at site). Sealing and pressure disks inside each fitting.

- cable entries M25x1,5
- in halogen-free version
- silicone-free
- shakeproof (RF) for areas subject to vibrations and shocks (e.g. digger walkways, conveyor belts etc.)
- for connection to group or central battery systems (ZB)

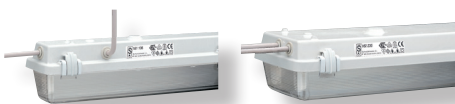
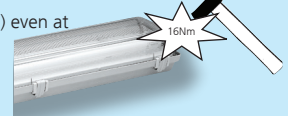
### Note:

Unlike housings made from polycarbonate our housings made from glass fibre reinforced polyester are durable resistant against UV-radiation and chemical components. Consequently they are all-purpose and enduring safe for long-term use. This is of significant importance especially for industrial applications.



### Product highlights:

- high grade, robust, chemically resistant light fitting of an excellent quality; especially suitable for its application at a rough industrial environment:
  - housing of a high-impact resistant (wall thickness: 2mm), outstanding chemical- and UV-resistance.
  - housing with 3 mounting points, especially suited for areas with a risk of shocks and vibrations e.g. power plants, boiler- or turbine rooms
  - diffuser of a high mechanical stability (quadruple safety due to impact resisting component. Wall thickness: 1,9mm). Excellent chemical resistance.
  - alternative: injected PC diffuser of a very high impact resistance (16 Nm) even at a high continuous temperature
- best suitable for easy mounting and maintenance purpose with a high security of continuous operation:
  - tiltable cover allows a quick and easy lamp replacement without any tools
  - captive clips consisting of several components made from high grade plastic (standard)
    - Option:** Clips made from high-alloy chromium-nickel steel (in case of aggressive ambient conditions), stainless steel hinges at one side if wanted.
  - variable looping facility of the mains cable



### Cable entries for looping the mains cable on one side (loop in/loop out):

Optionally the light fittings can be supplied with 2 cable entries on one small side. This feature allows an optimal adjustment to all local conditions and it will consequently save the typical quite expensive through wiring system (preparation at additional cost).

Article no.	Type	Lamps W	Weight [kg] without packaging material
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### 161/162...



16100 0018	<b>161118 EVG</b>	1 x T26/18	1,5
16100 0020	<b>161158 EVG</b>	1 x T26/58	3,0
<del>16200-0055</del>	<del><b>162218 EVG</b></del> no longer available	<del>2 x T26/18</del>	<del>2,2</del>

**Note:**

The light fitting is not to be used in areas with high mechanical stress (wind) or seldom usage (i.e. maintenance and inspection only).

In the hinged version please use fittings with stainless steel hinges in the 2 outer positions only.

When mounting the light fittings on bracket poles or tubular beams/pipes always use original Schuch pipe clamps with support (see accessories).

Article no.	Type	Lamps W	Weight [kg] without packaging material
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**161/162... AUS****for outdoor installation****Application:**

In protected and unprotected outdoor areas and industrial plants, mounted to walls, ceilings, catwalks and steel structures, pipe brackets, grating, under canopies, bus stops, train stations, subways, construction sites, etc. (please contact us in case of aggressive substances)

**Design:**

As type 161/162..., but:

Diffuser: UV proof

Gasket: Silicone.

Pressure compensation element:

M20

Entries:

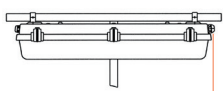
1 gland M20 at one small side, pressure compensation element M20 at the other small side.

**Mounting:**

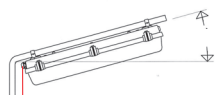
Ceiling and horizontal wall mount or mounting to outreaches, poles, steel structures, catwalks, etc. by means

of pipe clamps.

For vertical mounting please consult us.

**pole mount with pipe clamps**

pressure compensation element



pressure compensation element

**Notes:**

These light fittings are also available in **LM version:**

- as LED-version
- with PC cover when no cleaning solvents are being used (version IFS)

The Light Fittings may not be cleaned with water-jet units.

**Advantages of the AUS design:**

- glass fibre reinforced polyester housing, durable resistant against UV-radiation and chemical components.
- our injected PMMA-covers are extremely UV-resistant and robust (wall thickness 1.9mm)
- profile gaskets are UV-, ozone-, weather-, chemically resistant and non-aging
- pressure compensation element provides controlled venting and thus protects against condensation
- the fitting can be installed in canopied as well as in entirely open outdoor areas

16100 0406	<b>161118 AUS EVG</b>	1 x T26/18	1,6
16100 0408	<b>161158 AUS EVG</b>	1 x T26/58	3,4
<del>16200-0406</del>	<del><b>162218 AUS EVG</b></del> no longer available	2 x T26/18	2,2

**161/162... LM****for application in food industry areas****Application:**

Food industry or food processing factories especially in risky areas of the food production or processing, suppliers to the food industry who are falling in the IFS, BRC or HACCP

standards or who are subject to comparably strict requirements (e.g. production of food packaging).

**Design:**

Same as type 161/162... but:

Diffuser: Shatterproof, highchemical resistance.

Profile gasket: Non-absorbing,

non-porous, physiologically perfect.

Closure clips: Stainless steel (KE).

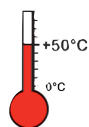
**Advantages of the LM version:**

- shatterproof diffuser with very high impact resistance (20Nm) even at a high continuous operating temperature
- resistant against grease and aggressive cleaning agents, disinfectants and solvents (We recommend potential used cleaning agents and disinfectants to be proofed on their consistency! Consistency index on request.)

**IFS/BRC/VDMA/HACCP**

SCHUCH Light Fittings designed for food and beverage industry applications are in accordance with IFS/BRC/VDMA standards. They can be operated without restrictions in operations that must fulfill the HACCP Concept.

16114 0007	<b>161118 LM EVG</b>	1 x T26/18	2,8
16114 0009	<b>161158 LM EVG</b>	1 x T26/58	7,4
<del>16216-0007</del>	<del><b>162218 LM EVG</b></del> no longer available	2 x T26/18	2,8

**Notes:**

Especially for the food industry we deliver version LM with a special surface finish of the PC cover which complies with the IFS Food (International Featured Standard Food), also available for high temperatures. Please consult us.

**161/162... H...****for high ambient temperatures up to +70°C****Application:**

Power stations, garbage incineration plants, recycling plants, chemical industries ...

**Design:**

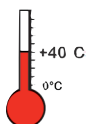
For a. t. up to +40°C

Diffuser: Injected, clear acrylic with internal prisms.

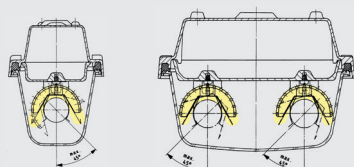
Closure: External plastic clips (KK).

**for a. t. up to +40°C**

16102 0055	<b>161118 H40 EVG</b>	1 x T26/18	1,7
16102 0057	<b>161158 H40 EVG</b>	1 x T26/58	3,5
<del>16203-0105</del>	<del><b>162218 H40 EVG</b></del> no longer available	2 x T26/18	2,9

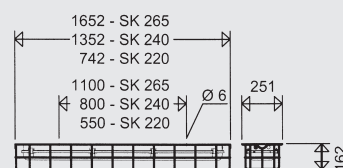
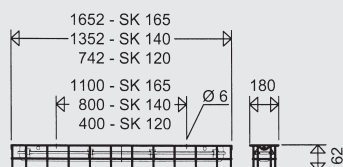


### Rotatable snap-on mirror reflectors



**DB** standardized by Deutsche Bahn AG

### Wire guards



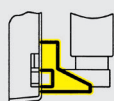
**Pipe clamp R1 1/2" - Ø 48,3mm**  
**R2" - Ø 60,3mm**



### Ceiling bracket 183 DS



### Lamp holder support 190 FS

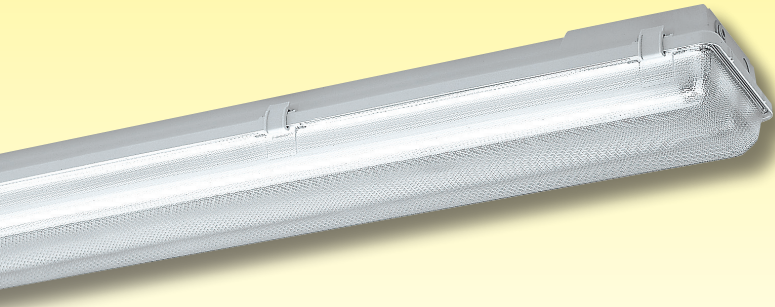


#### Note:

Further accessories as well as carrier rail systems and through-wiring system are available.

## Accessories / Spare Parts

Article no.	Type		Article no.	Type	
<b>Spare acrylic glass covers (PMMA)</b>			<b>Spare polycarbonate glass covers (PC)</b>		
16111 9000	<b>161 018</b>		16111 9003	<b>161 018 PC</b>	
16111 9001	<b>161 036</b>		16111 9004	<b>161 036 PC</b>	
16111 9002	<b>161 058</b>		16111 9005	<b>161 058 PC</b>	
16211 9000	<b>162 018</b>		16211 9003	<b>162 018 PC</b>	
16211 9001	<b>162 036</b>		16211 9004	<b>162 036 PC</b>	
16211 9002	<b>162 058</b>		16211 9005	<b>162 058 PC</b>	
<b>Spare covers LM</b>					
16111 9017	<b>161 018 LM</b>		16211 9017	<b>162 018 LM</b>	
16111 9018	<b>161 036 LM</b>		16211 9018	<b>162 036 LM</b>	
16111 9019	<b>161 058 LM</b>		16211 9019	<b>162 058 LM</b>	
<b>Spare polycarbonate glass covers PC SC</b>					
16111 9012	<b>161 018 PC SC</b>		16211 9014	<b>162 018 PC SC</b>	
16111 9013	<b>161 036 PC SC</b>		16211 9015	<b>162 036 PC SC</b>	
16111 9014	<b>161 058 PC SC</b>		16211 9016	<b>162 058 PC SC</b>	
<b>Spare polycarbonate glass covers PC 25C</b>					
16111 9020	<b>161 018 PC 25C</b>		16211 9020	<b>162 018 PC 25C</b>	
16111 9021	<b>161 036 PC 25C</b>		16211 9021	<b>162 036 PC 25C</b>	
16111 9022	<b>161 058 PC 25C</b>		16211 9022	<b>162 058 PC 25C</b>	
<b>Rotatable snap-on mirror reflectors</b>					
High anodized mirror-type reflectors clamped onto the 26mmØ fluorescent tubes, with snap-on device, allowing a reflector setting in steps of 15°. Suitable for the following light fittings:					
16112 0001	<b>161/21</b>		16212 0001	<b>162/22</b>	
16112 0002	<b>161/41</b>		16212 0002	<b>162/42</b>	
16112 0003	<b>161/61</b>				
<b>Wire guards, powder coated</b>					
90004 0001	<b>SK 120</b>		90004 0004	<b>SK 220</b>	
90004 0002	<b>SK 140</b>		90004 0005	<b>SK 240</b>	
90004 0003	<b>SK 165</b>		90004 0006	<b>SK 265</b>	
<b>Clips</b>					
90053 9006	<b>KK FR VE10</b>	plastic clips (packing unit 10)			
90055 9003	<b>KE VE10</b>	stainless steel clips (packing unit 10)			
<b>Cable entries/pressure compensation element</b>					
90063 9000	<b>2511</b>	grommets, Pg13,5/M20			
25610 9000	<b>2561</b>	plastic cable gland M20 x 1,5			
25600 9000	<b>2560</b>	plastic cable gland M25 x 1,5			
90259 9002	<b>DAE20</b>	pressure compensation element M20			
90259 9003	<b>DAE 20/25</b>	adapter gland M20 -> M25 with pressure compensation			
<b>Lamp holders</b>					
90056 9006	<b>161/1 T140</b>	lamp holder for a. t. of +60°C			
90057 9000	<b>183/1</b>	starter holder			
90056 9002	<b>190 FS</b>	lamp holder support			
<b>Lamp holders for T5-lamps</b>					
90056 9008	<b>161 T5</b>	lamp holder for all fluotubes			
<b>Mirror-type alu reflectors for subsequent installation into our standard light fittings</b>					
90238 9001	<b>S 162/2 36</b>	for 162 2367228/254			
90238 9002	<b>S 162/2 58</b>	for 162 258/235/249/280			
<b>Pipe clamps</b>					
90093 0002	<b>183 RO 112 A P</b>	2 pcs., 1 1/2" stainless steel, with support			
90094 0002	<b>183 RO 2 A P</b>	2 pcs., 2" stainless steel, with support			
Consider mounting distances when installing the light fittings by pipe clamps to pole outreaches or any brackets.					
<b>Angle brackets, aluminium for series 161/162..., 163/164... and 175/176...</b>					
90045 9001	<b>HW 30 P</b>	pair of angle brackets 30°			
90045 9002	<b>HW 45 P</b>	pair of angle brackets 45°			
90045 9004	<b>HW 60 P</b>	pair of angle brackets 60°			
90045 9003	<b>HW 90 P</b>	pair of angle brackets 90°			
<b>Accessories for ceiling mounting</b>					
90049 0002	<b>183 S</b>	hook for chain suspension			
90095 0001	<b>183 DS</b>	stainless steel bracket with bolt M5			



## Dustproof/Waterproof Light Fitting with Diffuser Series 164 ...

### Application:

In humid, wet and dusty interior areas of industrial and agricultural premises, for car parks, basements...

Aggressive atmospheres: Please consult us.

### Design:

**Housing:** Glass fibre reinforced polyester resin, foamed polyurethane gasket.

**Diffuser:** Stippled clear PMMA, modified for higher impact resistance or polycarbonate (PC).

**Fasteners:** External plastic clips (KK).

**Reflector:** Removable white sheet steel, complete with electronic components.

Rotary fasteners for quick assembly.

**Electrical connection:** 3-pole terminal block.

**Cable entries:** Variable, closed knock-outs on the short and long sides, and on the top, 2 blanking plugs M20. Cable looping in/out at one end (see grey box).

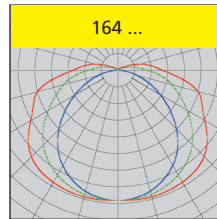
**Mounting system:** 2 holes for ceiling mounting. Sealing and pressure disks are supplied inside the fitting.

### Options:

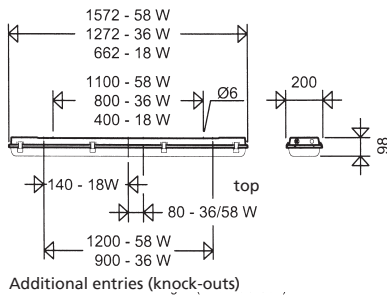
- polycarbonate diffuser (PC)
- stainless steel fasteners (KE)
- PVC or silicone through wiring system up to max. 7 x 2.5mm<sup>2</sup> or 5 x 4mm<sup>2</sup>
- cable entries M25 x 1.5

– for applications in food industry areas (IFS)

– for connection to central battery systems (ZB)



### 164...

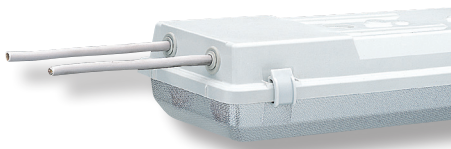


### Product highlights:

- quality Dustproof/Waterproof light fitting with higher than average mechanical strength and chemical resistance
  - robust glass fibre reinforced polyester enclosure
  - robust, modified PMMA diffuser (alternatively PC) with thicker walls
  - reliable and infallible sealing, due to polyurethane gasket situated inside a deep groove
- easy to install and maintain
  - fast dismantling and assembly of the reflector using rotary fasteners on moulded-in studs
  - large terminal compartment for up to 7 x 2.5mm<sup>2</sup> or 5 x 4mm<sup>2</sup> terminals
  - problem-free, single-handed installation (2-point suspension)
  - easily adaptable to all local structural conditions due to the variable cable entries on the short and long sides, as well as the top
  - quick and economic single-ended IN-OUT wiring instead of the classic through wiring for strip lighting

Article no.	Type	Lamps W	Weight [kg] without packaging material
16400 0010	164218 EVG	2 x T26/18	2,2

### 164..



### Standard design with cable entries for 3-pole single-ended IN-OUT wiring:

The variable cable entries make it possible to adapt for all local structural conditions and enables the use of single-ended IN-OUT wiring instead of the classic through wiring. All entries are knock-out.

Aluminium narrow beam mirror reflector  
for retrofitting into standard light fitting

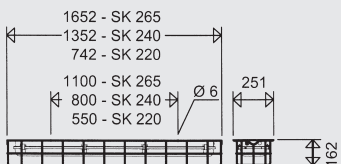
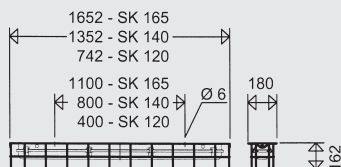
ST 163



ST 164



Protective guard



Pipe clamp R1 1/2" - Ø 48,3mm  
R2" - Ø 60,3mm



Ceiling bracket 183 DS



Note:

Light-band rails and through wiring see end of  
chapter "Dustproof/Waterproof lighting"

## Accessories / Spare Parts

Article no.	Type		Article no.	Type	
<b>Spare diffuser PMMA</b>			<b>Spare diffuser polycarbonate (PC)</b>		
16311 9000	<b>163018</b>		16311 9003	<b>163018 PC</b>	
16311 9001	<b>163036</b>		16311 9005	<b>163058 PC</b>	
16311 9002	<b>163058</b>				
16411 9000	<b>164018</b>		16411 9003	<b>164018 PC</b>	
16411 9001	<b>164036</b>		16411 9004	<b>164036 PC</b>	
16411 9002	<b>164058</b>		16411 9005	<b>164058 PC</b>	
<b>Fasteners</b>					
90123 9003	<b>163 KK VE08</b>	plastic (packing unit 8)			
90123 9002	<b>163 KE VE08</b>	stainless steel (packing unit 8)			
<b>Cable entries</b>					
90063 9000	<b>2511</b>	blanking plug M20			
25610 9000	<b>2561</b>	plastic cable gland M20 x 1,5			
25600 9000	<b>2560</b>	plastic cable gland M25 x 1,5			
<b>Lamp holders</b>					
<b>from manufacturing date 2008 (focal point 30mm)</b>					
90124 9003	<b>164/1/30</b>	without starter holder (cut-out 25.5 x 13.2)			
90125 9002	<b>164/2/30</b>	with starter holder (cut-out 25.5 x 13.2)			
<b>... for T5</b>					
90124 9002	<b>163/1 T5</b>				
<b>. for 163/164... LW (with corrosion protected metal parts)</b>					
90124 9005	<b>164/1/30 LW</b>	without starter holder (cut-out 25.5 x 13.2)			
90125 9005	<b>164/2/30 LW</b>	with starter holder (cut-out 25.5 x 13.2)			
<b>Aluminium narrow beam mirror reflector for retrofitting into standard light fitting (not for T5)</b>					
16412 0001	<b>ST 164/36</b>	for 164 236 and 164 228/54			
16412 0002	<b>ST 164/58</b>	for 164 258, 164 235/49 and 164 280/2E			
<b>Protective guard, powder coated</b>					
90004 0001	<b>SK 120</b>	for 163 x 18/14/24 W			
90004 0002	<b>SK 140</b>	for 163 x 36/28/54 W			
90004 0003	<b>SK 165</b>	for 163 x 58/35/49/80 W			
90004 0004	<b>SK 220</b>	for 164 x 18/14/24 W			
90004 0005	<b>SK 240</b>	for 164 x 36/28/54 W			
90004 0006	<b>SK 265</b>	for 164 x 58/35/49/80 W			
<b>Pipe clamp</b>					
90245 0003	<b>163 RO 112A P</b>	1 1/2", stainless steel, without retaining bracket (pair)			
90245 0004	<b>163 RO 2A P</b>	2", stainless steel, without retaining bracket (pair)			
90245 0005	<b>164 RO 112A P</b>	1 1/2", stainless steel, with support (pair) for 164...			
90245 0006	<b>164 RO 2A P</b>	2", stainless steel, with support (pair) for 164...			
Attention: Observe the fixing distance when mounting on boom with pipe clamps (boom length!)					
<b>Accessories for ceiling mounting</b>					
90049 0002	<b>183 S</b>	swing hook for chain suspension			
90095 0001	<b>183 DS</b>	stainless steel bracket, with screw M5			





## Small High Impact Resistant Dust-/Waterproof Light Fitting with Diffuser Series 131...

### Application:

Humid, wet and dusty interior areas, corridors, staircases, basements, below canopies and balconies, technical installations, ventilation systems etc.

Aggressive atmospheres: Please consult us

### Design:

**Housing:** White polycarbonate.

**Cover:** Injected clear polycarbonate with internal prisms or white opalescent (W), at one side with multiple hinge for suspending and unhinging the diffuser,

### Options:

- diffuser made from PC opalescent white (W)
- cable looping at 1 small side (131... RR)

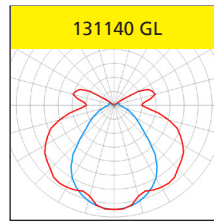
captive stainless steel screw on the other side for closing the fitting.

**Connection:** 3-pole terminal.

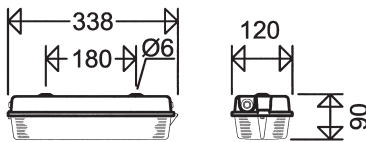
**Cable entry:**

1 grommet M16 at each front side.

**Mounting:** 2 borings serve for direct ceiling mounting. Sealing and pressure disks inside each fitting.



Series 131...



### Product highlights:

- robust, impact resistant design (all polycarbonate)
- easy to install and to maintain thanks to hinged diffuser

Article no.	Type	Lamps W	Weight [kg] without packaging material
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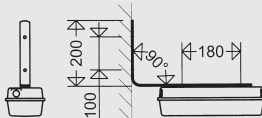
## 131...



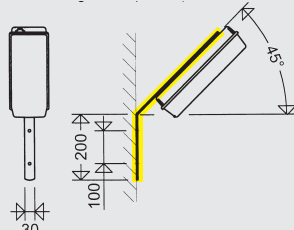
for energy saving lamps, lamp holder E27

13100 0011	<b>131140 GL</b>	1 x TC-EL 10-14	0,9
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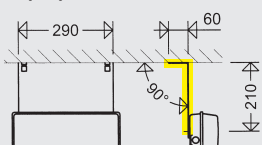
Wall bracket 90° (WA90)



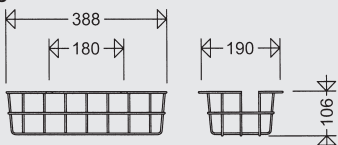
Wall bracket 45° (WA45)



Ceiling bracket (DA)



Wire guard



## Accessories / Spare Parts

Article no.	Type	
<b>Spare glass covers - PC, clear (polycarbonate)</b>		
13111 9000	<b>131000</b>	for 131...
<b>Spare covers - PC, opal-white (polycarbonate)</b>		
13111 9001	<b>131000 W</b>	for 131...
<b>Cable entries</b>		
90063 9000	<b>2511</b>	spare-grommet, M20
25610 9000	<b>2561</b>	plastic cable gland, M20 x 1,5
<b>Lamp holders</b>		
90253 9004	<b>G 23</b>	for 131...
90253 9005	<b>2 G 7</b>	for 131... ECG
90253 9006	<b>2 G 11</b>	for 131... VVG/ECG
90253 9000	<b>E 27</b>	for 131... GL
<b>Wire guard</b>		
90004 0009	<b>SK 130/131/2</b>	thick layer passivated
<b>Brackets</b>		
90232 0012	<b>WA 45 ALU</b>	wall bracket 45°
90232 0013	<b>WA 90 ALU</b>	wall bracket 90°
90232 0004	<b>DA</b>	ceiling bracket

## Dustproof/Waterproof Light Fitting without Diffusers Series 175...

### Application:

Humid, wet and dusty environments in industrial locations, workshops, car parks, cellars, kitchens etc. (Please contact us with regards to use where detergents and similar chemical materials are present!).

### Design:

**Housing:** glass fibre reinforced polyester with inserted stud bolts.

**Gasket:** temperature-proof, weather-resistant, non-ageing and chemical-resistant profile gasket.

**Electrical components:** mounted internally

on the hinged light fitting cover.

**Dustproof/Waterproof lamp holder:** with turn contacts.

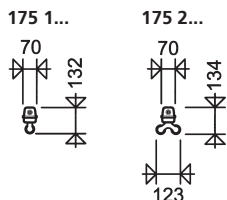
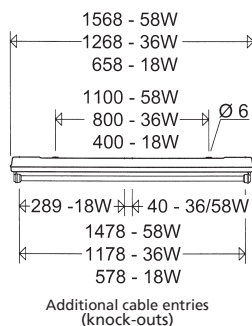
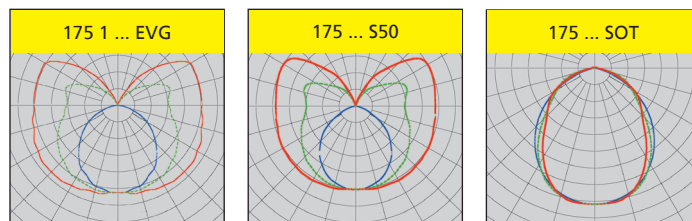
**Cable entries:** variable, at the top and ends of the housing; 2 threaded blanking plug M20, looping of incoming mains cable at one side of the fitting is possible. Cable entries are pre-pressed.

**Connection:** 3-pole terminal block.

**Mounting:** closed „knock-outs“ for ceiling mounting, rubber gaskets and washers for sealing are inside the fitting.

### Options:

- external reflectors (AR)
- for connection to group or central battery systems (ZB)



### Product highlights:

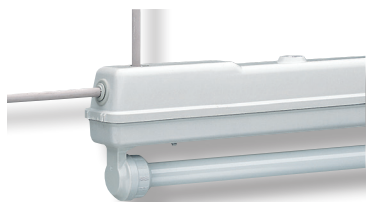
- sturdy, extremely resilient and chemical resistant quality light fitting – thick wall glass fibre reinforced polyester enclosure
- high stability due to moulded-in stud bolts with self sealing nuts
- easily adaptable to all local structural conditions due to the variable cable entries; quick and economic single end IN-OUT wiring eliminates the classic through wiring

Article no.	Type	Lamps W	Weight [kg] without packaging material
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### 175...



17500 0019	<b>175118 EVG</b>	1 x T26/18	0,8
17500 0022	<b>175218 EVG</b>	2 x T26/18	1,0



### With cable entries for IN-OUT wiring as standard

The variable cable entries allows for an easy adaption to suit all local structural conditions, thus eliminating the classic through wiring with single end IN-OUT wiring. All cable entries are knock-outs.

Article no.	Type	Lamps W	Weight [kg] without packaging material
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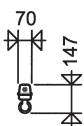
## 175... S50/SOT



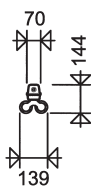
with clear PC protective tube with inner prisms Ø 50mm

17500 0155	175118 S50 EVG	1 x T26/18	1,2
17500 0158	175218 S50 EVG	2 x T26/18	1,6

175 1... S50



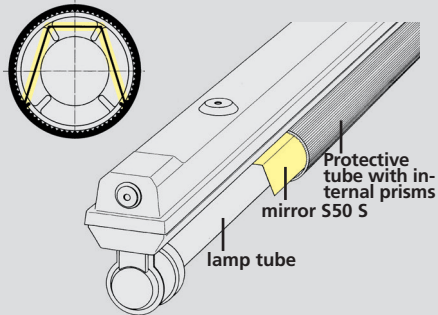
175 2... S50



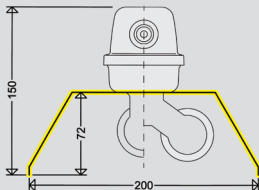
Dustproof/Waterproof  
Light Fittings



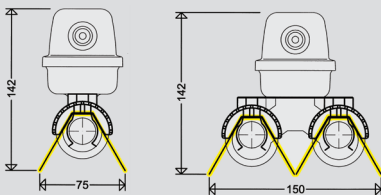
Aluminium polished mirror-type reflector  
S50 S for tube Ø 50mm  
for high ceilings respectively for changeable,  
specific light steering



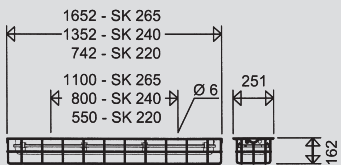
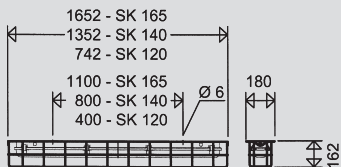
External reflector



Turn-and-engage mirror system



Protective guard



Pipe clamp RO 112 - Ø 48,3mm  
RO 2 - Ø 60,3mm



Ceiling bracket 183 DS



Note:

Light-band rails and through wiring see end of  
chapter "Dustproof/Waterproof lighting"

## Accessories / Spare Parts

Article no.	Type	Article no.	Type
<b>PC spare protective tube with sleeve, without mounting rings for light fittings with protective tubes Ø 50mm, with internal prism</b>			
17514 9003	175 018 S50		
17514 9004	175 036 S50		
17514 9005	175 058 S50		
<b>Spare oval protective tube with sleeves, internal mirror, without holder ring PC with internal prism</b>			
17514 9015	175018 SOT PC		
17514 9016	175036 SOT PC		
17514 9017	175058 SOT PC		
<b>Cable entries</b>			
90063 9000	2511		threaded blanking plug M20
25610 9000	2561		plastic cable gland M20 x 1.5
25600 9000	2560		plastic cable gland M25 x 1.5
<b>Plug-in lamp holder with twin slot contacts, with ring</b>			
90058 9000	171/20		for 1 lamp Ø 26mm (175 1..)
90059 9000	171/19		for 2 lamps Ø 26mm (175 2..)
<b>Plug-in lamp holders with twin slot contacts, without ring</b>			
90200 9006	175/1681/1		for 175 1... S38
90200 9007	175/1682/1		for 175 2.. / 175 2.. S38 + S50
<b>Plug-in lamp holder with rotary contacts, without ring</b>			
90200 9008	175 SOT		for 175... SOT and 175 1.. S50
90200 9001	175/1681		for 175 1... S38 (manufactured until 2008)
90200 9003	175/1682		for 175 2.. / 175 2.. S38 + S50 (manufactured until 2008)
<b>Retaining clamp for plug-in lamp holder</b>			
90200 9004	174/716		for 175... S38 + S50 + SO
<b>Lamp holder rings</b>			
90145 9000	FAR 26		for 175 ... Ø 26
90182 9000	FAR 502		for 175 ... S50
90002 0001	170/26		universal sealing ring from Ø 38mm to Ø 26mm
<b>Miscellaneous spare parts</b>			
90139 9000	STK 175		starter cap
90138 9000	STF 175		starter holder
<b>External reflector Powder coated aluminium (white) for site assembly</b>			
17513 0001	175/18		
17513 0002	175/36		
17513 0003	175/58		
<b>Turn-and-engage mirror system</b>			
Mirror-finish reflector for clip fastening on Ø 26 fluorescent tubes. With latching device for settings/steps of 15°			
17512 0001	175/21		
<b>Protective guard, powder coated</b>			
<b>for series 175 1...</b>			
90004 0001	SK 120	90004 0004	SK 220
90004 0002	SK 140	90004 0005	SK 240
90004 0003	SK 165	90004 0006	SK 265
<b>Mounting accessories for ceiling mounting</b>			
90049 0002	183 S		stainless steel swing hook for chain suspension
90095 0001	183 DS		stainless steel bracket with screws M5
<b>Pipe clamps</b>			
90091 0002	183 RO 112 P		1 1/2", stainless steel
90092 0002	183 RO 2 P		2", stainless steel
<b>Attention: Observe the fixing distance when mounting on boom with pipe clamps (boom length!)</b>			

## Aluminium Carrier Rails for Continuous Row Installation

### Series TRS 2000... and AL...

#### Application:

For rows of light fittings suspended from the ceiling, allowing an easy installation and assembly.

#### Design:

Aluminium profiled carrier rails (AL / TRS 2000)

Lengths: 2, 3 or 5 m. Additional covering strip (TRS A) for series TRS.

#### Mounting accessories:

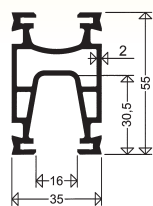
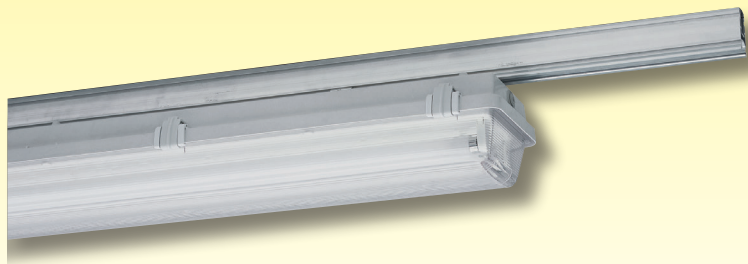
For each length of a light fitting only one suspension point is required.

Connection brackets (TRS V) - to be ordered separately - allow joining the individual rails up to any length wanted. The carrier rails can either be mounted

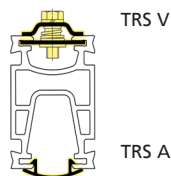
directly to the ceiling by means of the ceiling

brackets (183 A / TRS D) or they can be suspended from the ceiling by means of the hook (183 H / TRS S) in combination with the chain (KP 40) (max. distance of mounting rail elements 2.5m). Perlon pendulums are not suitable for this purpose.

2 or 3 devices (183 L / TRS L) serve for mounting a light fitting to the rail. The suspension devices 183 A / TRS D and 183 H / TRS S as well as the devices 183 L / TRS L are movable in the longitudinal direction of the rails.



TRS H

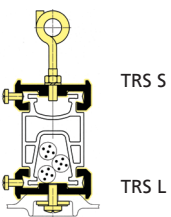


TRS V

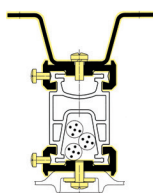


TRS A

TRS A



TRS S



TRS D

TRS L

### TRS 2000...

#### aluminium carrier rails

##### Product highlights:

- universal quick-action mounting system for explosion- and weather-proof light fittings.
- easy to install. (Fasten the suspension devices to the light fitting, push the light fitting with its suspension devices into the carrier rail profile - ready.)
- high carrying force thanks to a new profile structure
- possibility to insert the mains cable into the cable channel
- cover strips to protect against dirt deposit.

Article no.	Type	Product	Weight ca. [kg]
90260 0001	TRS 2000 2M	Alu-rail 2 m long	3,03
90260 0002	TRS 2000 3M	Alu-rail 3 m long	4,55
90260 0003	TRS 2000 5M	Alu-rail 5 m long	7,58
90265 0005	TRS 2000 A 1M	covering strip, 1 m long	0,04
90265 0006	TRS 2000 A 2M	covering strip, 2 m long	0,07

#### Mounting Devices

Article no.	Type	Product
90265 0004	TRS 2000 V	stainless steel device (profile) for rail connection
90265 0002	TRS 2000 D	stainless steel ceiling bracket
90022 0001	KP 40	chain 1 m long with 2 eyelets for fastening and length compensation
90265 0001	TRS 2000 S	stainless steel swing hook for chain
90265 0003	TRS 2000 L	luminaire suspension device
90265 0010	TRS 2000 H	stainless steel luminaire mounting, for later installation

**Please note:** For mounting the sheet steel light fittings (such as series 181/182...) please use the mounting accessories of the ex-proof light fittings.

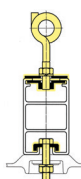
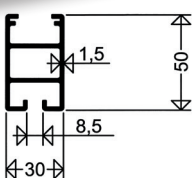
### AL...

#### aluminium carrier rails

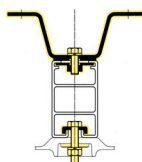
Article no.	Type	Product	Weight ca. [kg]
90005 0001	AL 2M	Alu-rail 2 m long	1,6
90005 0002	AL 3M	Alu-rail 3 m long	2,4
<del>90005 0003</del>	<del>AL 5M</del>	<del>Alu-rail 5 m long</del> no longer available	<del>3,9</del>

#### Mounting Devices

Article no.	Type	Product
90265 0004	TRS V	stainless steel device for rail connection
90185 0001	183 A	stainless steel ceiling bracket for ceiling mounting of the carrier rail
90022 0001	KP 40	chain 1 m long with 2 eyelets for fastening and length compensation
90049 0001	183 H	stainless steel hook for chain pendulum
90050 0001	183 L	stainless steel luminaire mounting system complete



183 H



183 A

183 L

183 L



## Sheet steel Carrier Rails for Continuous Row Installation Series TRS 1000

### Applications:

For rows of polyester dust-/waterproof light fittings suspended from the ceiling, allowing an easy installation an assembly.

### Design:

Profile carrier rails made from sheet steel, galvanized and painted in white on the outside

### Lengths:

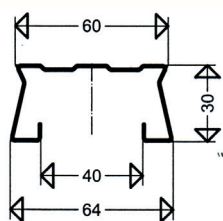
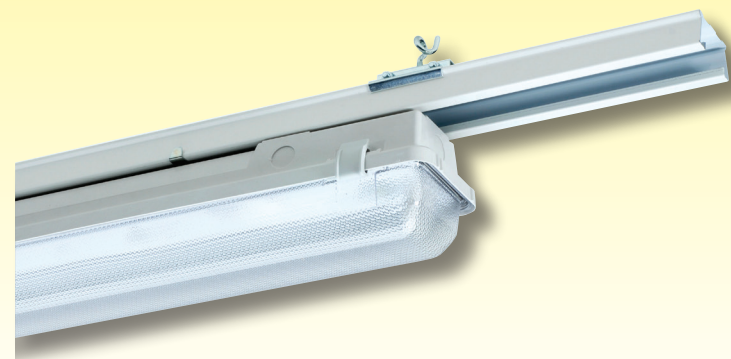
3065mm (TRS 1000/2) and  
4595mm (TRS 1000/3)  
Additional covering strip (TRS 1000 A)  
1538mm

### Mounting accessories:

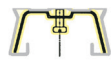
Connection brackets (TRS 1000 V) – to be ordered separately – allows joining the

individual rails up to any length required.

The carrier rails can either be mounted directly to the ceiling by means of the ceiling hanger (TRS 1000 S) or they can be suspended from the ceiling with chain suspension (KP 40), (max. distance of mounting rail elements 2m). 2 or 3 devices (TRS 1000 L) serve for mounting a light fitting to the rail. The carrier rail can be covered with a covering strip (TRS 1000 A) and they can also be closed at the ends with caps (TRS 1000 E).



TRS 1000 S



TRS 1000 V



TRS 1000 A



TRS 1000 L



TRS 1000 E

### Note:

Most of our light fittings have got two entries at one end of the housing for looping the mains cable. **Thus, the classical through-wiring system is no longer required in many cases.**

Ambient temperatures of +40°C and higher require silicone through wiring of 2.5mm<sup>2</sup> cross-section.

For T5 light fittings we strictly recommend through wiring systems of 2.5mm<sup>2</sup> cross-section.

## TRS 1000...

### Sheet steel carrier rail systems

Article no.	Type	Product
90261 0001	TRS 1000 /2	sheet steel carrier rail 3,065mm long
90261 0002	TRS 1000 /3	sheet steel carrier rail 4,595mm long

### Mounting equipment

Article no.	Type	Product
90264 0001	TRS 1000 V	rail connector
90264 0002	TRS 1000 S	rail suspension device for direct mounting or chain pendant suspension
90022 0001	KP 40	chain 1 m long with 2 eyelets for fastening and length compensation
90264 0008	TRS 1000 L P	luminaire mounting device (1 pair)
90264 0004	TRS 1000 A	covering strip for the rail 1,538mm
90264 0007	TRS 1000 E P	end cap for the rail (1 pair)

## Through-Wiring Systems

One fixed multipole terminal at each end of the housing.  
Heat-resistant PVC or silicone cables fixed to the housing with clips.

### Through-wiring systems:

1,5mm<sup>2</sup> up to 10A max.  
2,5mm<sup>2</sup> up to max. 16A max.

Light fittings with electronic ballasts do have a high inrush current, hence the maximum permissible number of waterproof LED light fittings with through-wiring system per circuit breaker must be observed.

**For light fittings in continuous row installation we do recommend factory-fitted through-wiring systems.**

**For retrofitting our retrofit kits must be used.**

## Through-Wiring Systems Installed in the SCHUCH Factory

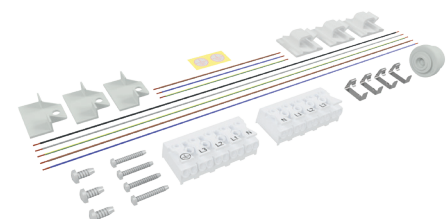
If through-wiring systems are wanted, we supply our dustproof/waterproof light fittings with the following standard through-wiring systems:

Ballasts	VVG	ECG
Through-wiring system	5 x 2,5mm <sup>2</sup> PVC	5 x 1,5mm <sup>2</sup> PVC

Silicone through-wiring systems for other cable cross sections or number of poles (e.g. 3x 1,5mm<sup>2</sup>) are available on request.

## Through-wiring systems for subsequent installation:

Article no.	Type	Product
<b>Universal retrofit kits, suitable for 18/36/58 Watt</b>		
11831 0013	DV/NS P 5x1,5	5 x 1,5mm <sup>2</sup> PVC, 105°C
11831 0022	DV/NS P 5x2,5	5 x 2,5mm <sup>2</sup> PVC, 105°C
11831 0014	DV/NS S 5x1,5	5 x 1,5mm <sup>2</sup> Silicone, 150°C
11831 0024	DV/NS S 5x2,5	5 x 2,5mm <sup>2</sup> Silicone, 150°C



## Zone Classification

(acc. to the standards 1999/92/EG)

Hazardous areas are classified into the following zones in accordance with the probability of the existence of an explosive atmosphere:

### Gases, vapours or mists

**Zone 0** An area in which an explosive atmosphere is present either continuously or over long periods or frequently as a mixture of air and combustible gases, vapours or mists.

**Zone 1** An area where under normal operating conditions an explosive atmosphere may occasionally be present as a mixture of air and combustible gases, vapours or mists.

**Zone 2** An area where an explosive atmosphere is not likely to be present under normal operation but if it should occur for some reason it would normally only exist for a short time as a mixture of air and combustible gases, vapours or mists.

### Dusts

**Zone 20** An area in which an explosive atmosphere is present either continuously or over a long time or frequently as a cloud of combustible dust in the air.

**Zone 21** An area where under normal operating conditions an explosive atmosphere may occasionally be present as a cloud of combustible dust in the air.

**Zone 22** An area where an explosive atmosphere is not likely to be present under normal operation but if it should occur for some reason it would normally only exist for a short time as a cloud of combustible dust in the air.

## ATEX Equipment

Temperature classes acc. to IEC 60079-0

An important parameter for the subdivision of the gases is the ignition temperature.

The ignition temperature is the lowest surface temperature value which ignites an explosive atmosphere. The maximum surface temperature must always be lower than the ignition temperature of the gas-air or vapour-air mixture in which the product is applied.

Temperature classification	Maximum permissible surface temperatures of equipment [°C]	Ignition temperatures of inflammable substances [°C]
T1	450	> 450
T2	300	> 300 ≤ 450
T3	200	> 200 ≤ 300
T4	135	> 135 ≤ 200
T5	100	> 100 ≤ 135
T6	85	> 85 ≤ 100

## Classification of Gases and Vapours into Explosion Groups and Temperature Classes

Explosion group	Classification of gases and vapours into temperature classes					
	T1	T2	T3	T4	T5	T6
IIA	Acetone Ethane Ethyl acetate Ammonia Ethyl chloride Benzol Acetic acid Carbon monoxide Methanol Methyl chloride Naphtalene Phenol Propane Toluol	i-amyl acetate n-butane n-butyl alcohol Cyclohexane 1,2-dichloroethane Acetic anhydride	Gasoline Diesel fuel Aviation fuel Heating oils n-hexane	Acetaldehyde	-	
IIB	Town gas	Ethylene Ethyl alcohol	Hydrogen sulphide	Ethyl ether	-	
IIC	Hydrogen	Acetylene			-	Carbon disulphide
I	Methane					

## Categories of appliances

Acc. to the ATEX standards (2014/34/EU) the appliances for application in their relative zones are classified into categories. Similar to the different zones there are three different categories for group II of the equipment. Consequently, the explosion protected products can be allocated to the ex-zones existing in the production area.

**Category 1** comprises appliances which have been designed in such a way that they may be operated in compliance with the characteristic sizes given by the manufacturer and which ensure a high degree of safety. Appliances of this category may be used in ZONES 0 and 20 as per their certification.

**Category 2** comprises appliances which have been designed in such a way that they may be operated in compliance with the characteristic sizes given by the manufacturer and which ensure a high degree of safety. Appliances of this category may be used in ZONES 1 and 21 as per their certification.

**Category 3** comprises appliances which have been designed in such a way that they can be operated in compliance with the characteristic sizes given by the manufacturer and which ensure a standard level of safety. Appliances of this category may be used in ZONES 2 and 22 as per their certification.















## Modes of Protection

### according to European/IEC Standards

In areas where explosive atmospheres may occur despite the explosion protection measures employed, only explosion protected electrical equipment must be used.

<b>EN 60079-7</b>	- stands for: „Increased safety“	- code: „e“
<b>EN 60079-1</b>	- stands for: „Flameproof enclosure“	- code: „d“
<b>EN 60079-5</b>	- stands for: „Sand filling“	- code: „q“
<b>EN 60079-2</b>	- stands for: „Pressurised apparatus“	- code: „p“
<b>EN 60079-11</b>	- stands for: „Intrinsic safety“	- code: „i“
<b>EN 60079-18</b>	- stands for: „Moulding“	- code: „m“
<b>EN 60079-15</b>	- stands for: „Zone 2“	- code: „n“
<b>EN 60079-28</b>	- stands for: „Limitation of optical radiation“	- code: „op is“
<b>EN 60079-31</b>	- stands for: „Protection by enclosure“	- code: „t“

## Table of ingress protection

	1 <sup>st</sup> CHARACTERISTIC NUMERAL	2 <sup>nd</sup> CHARACTERISTIC NUMERAL	
RA-TING	PROTECTION AGAINST FOREIGN BODIES	PROTECTION AGAINST HARMFUL ENTRY OF WATER	Symbol
<b>IP 20</b>	solid objects > 12 mm	non-protected	
<b>IP 23</b>	solid objects > 12 mm	protected against spraying water	
<b>IP 40</b>	solid objects > 1 mm	non-protected	
<b>IP 43</b>	solid objects > 1 mm	protected against spraying water	
<b>IP 44</b>	solid objects > 1 mm	protected against splashing water	
<b>IP 54</b>	dust protected	protected against spraying water	 
<b>IP 55</b>	dust protected	protected against water jets	  
<b>IP 65</b>	dust tight	protected against water jets	  
<b>IP 66</b>	dust tight	protected against heavy seas	(no symbol)
<b>IP 67</b>	dust tight	protected against effects of immersion in water between 15cm and 1m for 30 minutes	  
<b>IP 68</b>	dust tight	protected against effects of immersion in water under pressure for long periods	
<b>IPx9k</b>	dust tight	protected against effects of high pressure water jets	



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